Attorney Docket No. 33075.71

Inventor: John R. Burgeson

Address: 4345-157th Avenue Northwest
Andover, MN 55304

Citizenship: United States of America

Title: TEMPERATURE ACTIVATED SCENT WICK

BACKGROUND OF THE INVENTION

1. Field of the Invention.

The present invention relates generally to devices used in hunting for the release of attractant scents, and more specifically to such devices designed to deposit scent on a wick at a particular location over a period of time without human intervention.

2. Background.

The use of animal attractant scents by hunters to increase their chances of hunting success is well known. In particular, these scents can be used in ways that take advantage of the mating processes of certain species. For example, in the case of white-tail deer it is known that the buck will prepare a "scrape" to attract a doe. The scrape is prepared by the buck as he scrapes the ground with his hooves at a particular spot and deposits some urine thereon. This action can serve to attract a doe who will then deposit a particular scent, produced when in heat, on the scrape, thereby indicating her receptiveness for mating. The buck will, in this matter, be alerted to the presence of the doe and will tend to spend more time in the location of his scrape. This increase in time spent in a particular area makes him easier to hunt. Thus, hunters will prepare an artificial scrape, or locate a natural scrape in attempts to attract a buck. This is done by finding a scrape, or preparing a mock scrape by scraping the ground in a manner similar to that of a buck, and then depositing a commercially available scent thereon that signals to the buck the presence of a doe in the correct stage of her estrous cycle.

Devices for depositing such scents on the ground are known, and generally consist of a bottle or other container for holding the scent and a valve for regulating the rate that the scent drips therefrom onto the scrape. Such devices are typically suspended from a branch above the scrape and provide for a continuous release of the scent. However, such a continuous flow is not generally desirable as attractant scents are relatively expensive, and release is not necessary during the night, or during periods of rain when the scent can be washed away. Also, scent on the ground does not disburse as well as scent well above ground such as on a wick.

Other temperature activated scent dispensing devices are known, that operate without the use of a valve mechanism. Examples of such a scent depositing device that could automatically regulate the flow of scent therefrom so as to minimize any waste of the scent and to increase the amount of time that the device could be left unattended are disclosed in U.S. Patent No's 5,220,741; 5,279,062 and 5,361,527.

Hanging scent wicks have also been used that absorb scent manually places thereon and dispense the scent overtime until the wick dries out. Such wicks requires daily scent deposit leaving unwanted human odors around the wick. Examples of these wicks are disclosed in U.S. Patent No's 5,555,663; 6,158,668 and Des. 435,896.

There is a need for a temperature activated scent wick for dispensing scent into the air for use by hunters. Such a wick should dispense during the day and stop at night. The device should contain enough scent as to operate several days without the need for the hunter to approach the device and leave unwanted human odors about the wick.

SUMMARY OF THE INVENTION

The present invention relates to a scent wick for use by hunters for dispensing scent to attract animals suitable for hunting. A Temperature activated scent wick for dispensing into the air above the ground of an animal attraction scent for use by hunters includes a container made of substantially rigid material so as to resist atmospheric pressure affects having an interior volume for holding a volume of scent and substantially equal or greater volume of air. The container is adapted for suspension above the ground. A cap is provided for sealing the container. A temperature buffing scent reservoir passes through the cap with an interior intake end in flow communication with the interior scent volume and an exterior release end. An absorbent scent wick is securable about the temperature buffering scent reservoir release end wherein an increase in ambient temperature associated with morning and afternoon will result in the interior volume of air expanding to force the scent to pass through the temperature buffering scent reservoir on to the wick. A decrease in ambient temperature associated with later day will result in stopping the scent from passing through the reservoir as to conserve the scent.

The principal object and advantage of the present invention is that it drips scent onto the wick when temperatures are rising and stops dripping if temperatures are not rising.

When temperatures fall, the device sucks in air bubbles to replace the scent that has dripped out during the day.

Another object and advantage of the present invention is that the Temperature Activated Scent Wick stops dispensing scent in the evening and throughout the night so it does not waste scent and is less likely to attract deer and other big game animals in the evening and throughout the night when the hunter is not present.

Another object and advantage of the present invention is that the Temperature Activated Scent Wick resumes dripping of scent on the wick in the morning and throughout the day without attendance by the hunter.

Another object and advantage of the present invention is that the scent wick contains enough scent to operate for several days without the need to attend to it or replenish it.

Another object and advantage of the present invention is that the hunter avoids leaving additional human odors in places adjacent to the Temperature Activated Scent Wick which would substantially increase the chance of the hunter being detected by the wild game which also dramatically reduces the hunters chances of success.

BRIEF DESCRIPTION OF THE DRAWINGS

A more thorough understanding of the operation of the present invention, and of its objects and advantages can be had in light of the following detailed description which refers to the following figures, wherein:

FIG. **1** shows a plan partial cross-sectional view of one embodiment of the present invention.

FIG. **2** shows a plan cross-sectional view broken away of an alternative embodiment

FIG. **3** shows a plan cross-sectional view broken away of a further alternative embodiment.

FIG. **4** shows a plan cross-sectional view of a further alternative embodiment.

FIG **5** shows a plan cross-sectional view of a further alternative embodiment.

FIG **6** shows a plan cross-sectional view of further alternative embodiment.

FIG **7** shows an elevational view of one version of the absorbent scent wick of the invention.

FIG **8** shows a plan cross-sectional view broken away of a further embodiment.

FIG **9** shows a perspective view of a further embodiment.

FIG **10** shows an elevational view of the embodiment of FIG **9** broken away.

FIG **11** shows an elevational view of another cap embodiment partially broken away.

FIG **12** shows an elevational view of the embodiment of FIG **11**.

FIG **13** shows an elevational view of another cap embodiment partially broken away.

FIG **14** shows a broken away view of the cap of FIG **13**.

DETAILED DESCRIPTION OF THE INVENTION

As seen in FIG. **1**, the present invention is referred to generally by numeral **10** and includes a substantial rigid container **12** such as a glass or plastic bottle. Container **12** defines an interior volume **14** for holding a liquid scent **16**, and has a single opening **18** defined by a neck **20**.

A temperature buffering scent reservoir, generally designated **22**, includes a cap end portion **23** for providing threadable and sealable engagement with neck **20** of bottle **12**. Scent reservoir **22** is preferably made of a plastic material resilient so as to provide for a tight sealing engagement between end portion **23** and bottle **12**. Scent reservoir **22** further includes a reservoir portion **24** threadably engageable with cap portion **23**, having a base **25**, a top end **26** and a sidewall **27** extending therebetween. Base **25**, end **26** and sidewall **27** serve to define the rigid exterior housing or surface of the interior volume **30** of reservoir portion **24**. A scent delivery conduit **31** having an intake end **32** is integral with top end **26** and defines an intake orifice **33**. End **32** extends from the center of top end **26** towards base **25** and terminates with an end **34** having an orifice **35** closely adjacent base **25**. Conduit or tube **32** provides for fluid communication of scent **16** between container interior volume **14** and reservoir interior volume **30**. A scent releasing orifice **36** extends through sidewall **27** at a point thereon adjacent top end **26**. Scent wick **45** essentially covers scent releasing outface **36** and reservoir portion **24** and is releasable held in place by velcro hooks **47**.

Scent wick **48** is generally a synthetic felt that will not chemically react with the scent **16**. Scent wick 48 will be easily grasped by Velcro hooks **47**. The felt must be highly absorbent, so that the scent **16** easily soaks into it and easily wicks out into the air. Various synthetic felts will work, including polyethylene, polypropylene, polyester, nylon, dacron, acrylic or the like.

Bottle **12** may be covered with a thin insulating layer **37**, such as a ¼ inch of a foam rubber material, which is in turn covered by a camouflaging material **38**. Material **38** includes an eyelet **40** for providing for suspending of the present invention by a string or wire suspension means **42**.

The operation of the present embodiment can now be appreciated wherein, reservoir **22** with scent wick **48** is first removed from container **12** so that scent **16** can be poured into interior **14** thereof. After re-engaging reservoir **22** with container **12** scent dispensing device **10** is suspended above the ground whereupon scent is to be distributed. String **42**, one end of which is secured to eyelet **40**, provides for such suspension from a suitable object such as a tree limb whereby it can be understood that container **12** will be inverted so that reservoir **22** is below container **12** with respect to the ground. Scent **16** will then flow to and stop at end **32** of tube **31**. This stoppage of flow is due primarily to the fact that interior volume **14** is sealed to prevent air from leaking into that interior volume and thereby allowing scent to be released.

It can now be appreciated that an increase in temperature will cause expansion of the air in container **12** resulting in scent **16** being forced into reservoir volume **30** through conduit **31**. If the temperature increase is great enough scent **16** will fill reservoir volume **30** up to an above the level of orifice **36**, such level being indicated by dashed line **44**. Scent **16** can then exit through orifice **36** onto the scent wick **48**. Conversely, when the temperature cools in the evening, the air in container **12** will contract whereby scent **16** will be drawn out of reservoir volume **30** down to the level as indicated by dashed line **46**. When volume **30** is lowered to level **46**, air can then be sucked up tube **31** and into interior volume **14** of container **12**. This added volume of air replaces the volume of scent **16** deposited and allows additional scent **16** to be released during the next heating cycle. It can be seen that container **12** must be rigid so as to resist any atmospheric pressure effects that can tend to distort the interior volume thereof and thereby detract from the proper operation of the present invention.

The present invention, thus, takes advantage of the relative change in temperature that generally occurs between day and night. It can also be appreciated that, after the first cycle of scent deposition onto wick **48**, the size of the interior reservoir volume that must first be filled, before scent deposition can take place, is indicated by the volume thereof between dashed lines **44** and **46**. This size therefore affects what degree of temperature increase, given a particular initial ratio of scent volume to container interior volume, is necessary to first cause such scent release. The minimum degree change desired for initial scent deposition can vary with respect to regional hunting conditions and requirements. However, it has been found that for conditions as typically encountered in the northern United States, a 10 degree Fahrenheit increase requirement is desirable to provide for adequate scent release buffering for this embodiment. Given a container volume of approximately 150 ml, and a ratio of the volume of scent to the interior volume of the container of about 1 to 4, a temperature increase of 10 degrees Fahrenheit will result in approximately 2.5 ml of scent being expelled from the container into the reservoir. Thus, the reservoir volume would have to equal approximately 2.5 ml to provide for the desired buffering effect. Generally speaking, about 2 to 5 mls of scent should be deposited each day to refresh scent wick **48** used to hunt white-tailed deer. Such volume of scent release will be accomplished in the above example if the daily increase in temperature is from 15 to 20 degrees Fahrenheit. Thus, the present invention can provide for unattended scent release, under average conditions as experienced by hunters in the northern United States, during a period from 5 to 9 days. As reservoir portion **24** is threadably engagable with cap portion **23**, it is contemplated that reservoirs of differing sizes can be used to accommodate various buffering volumes as may be dictated by particular hunting conditions.

It can be appreciated that, the ratio between the volume of scent and the volume of the container affects the amount of scent pushed from the container, whereby the larger the proportion of air within the container is to the volume of scent initially, the greater will be the amount of scent so released for a given temperature increase. The above stated 1 to 4 ratio allows for an adequate amount of air in the container to push out the desired amount of scent under the above described conditions and parameters. However, it will be appreciated by those of skill, that changes of the ratio of the volume of scent to the interior volume of the container, and changes of the reservoir volume can be made to adapt the invention herein to differing hunting or climatic conditions or requirements. Thus, if greater temperature buffering is desired the reservoir volume could be increased and/or the volume of scent

initially placed into the container could be increased with respect to the volume thereof, and conversely, if less temperature buffering is needed.

A further embodiment of the present invention is seen in FIG. **2**, wherein the modification is represented by a temperature buffering scent reservoir generally designated **50**. Reservoir **50** includes a cap end **52** for providing sealable and releasable engagement with container **12**. Reservoir **50** also includes a tube portion **54** sealably attached to or integral with cap end **52**. Portion **54** includes an intake end **55** defining an intake orifice **56** and extending therefrom to a release end **57** defining a scent release orifice **58**. A temperature buffering volume **59** is defined as that portion of the interior volume of tube **54** extending between dashed lines **60** and **61**. Velcro hooks **62** hold scent wick **63** releasably in place.

In operation, as with the previous embodiment, after adding scent **16** to container **12**, the present invention is suspended above the ground whereby scent dispensing reservoir **50** depends below container **12**. Scent **16** will initially start at a level represented by dashed line **60**. Thus, an increase in temperature will cause scent **16** to travel through orifice **56** down tube **54** towards orifice end **57**. If the increase is sufficient scent can then be expelled out of orifice **58** for deposition onto scent wick **63**. Reduction of temperature will cause scent **16** to be pulled back into container **12** as the air therein contracts ultimately resulting in more air being sucked therein when scent **16** reaches level **60**.

Tube portion **54** can be made of a flexible plastic material. Also, it is desirable that the inside diameter thereof be on the order of approximately 1/8th of an inch to help insure that the surface tension of the scent is sufficient to prevent air from bubbling up into container **12** as the result of the present invention being moved or shaken by the wind or other forces.

A further embodiment of the present invention is seen in FIG. **3**, wherein the modification is represented by a temperature buffering scent reservoir generally designated **70**. Reservoir **70** includes an attachment or cap portion **72** for providing sealable and releasable engagement with container **12**. Reservoir **70** also includes a tube reservoir portion **73** having an intake end **74** defining an intake orifice **75**. End **74** is secured to, or integral with cap portion **72** and extends therefrom to a scent releasing end **76** defining a scent release orifice **77**, about which is scent wick **86** held in place by velcro hooks **85**. In

contradistinction to the embodiment seen in FIG. **2**, tube portion **74** is formed into a loop whereby it extends through an arc of 360 degrees.

In operation, as with the other described embodiments, after adding scent **16** to container **12**, the present invention is suspended above the ground whereby scent dispensing reservoir **70** depends below container **12**. Scent **16** will initially start at a level represented by dashed line **78**. Thus, an increase in temperature will cause scent **16** to travel through orifice **75** into tube portion **73** towards end **76**. If the temperature increase is sufficient, scent can travel to the apex of the circular loop portion as indicated by dashed line **80** tangent thereto. It can be understood that scent **16** will then be able to flow down the remaining length of tube portion **73** and out of orifice **77** for ultimate deposition onto the scent wick **86**. Tube portion **73** can be made of a flexible plastic material. Also, the inside diameter thereof can be somewhat greater than that of tube **54** of the embodiment in FIG. **2**, as the formation of tube into a loop serves to further resist the accidental release of scent therefrom, as opposed to the FIG. **2** embodiment. This is due to the fact that once scent has been deposited and the cooling or contraction cycle has begun air will be sucked into container **12** whereby scent **16** will be drawn to the level indicated by dashed line **83**. At this level air can be sucked into container **12** and, as a result thereof, scent **16** will not be drawn further into tube **73** in the direction of container **12**. Therefore, a portion of scent **16** will always reside above the bottom most point **82** of tube **73**. Thus, air must oppose gravity to enter into container **12** once scent **16** is pulled beck to the level indicated by line **83**. It can now be appreciated that the buffering volume of tube **73** between the levels indicated by dashed lines **80** and **83**. The inside diameter of tube portion **73** can be on the order of approximately 1/4th of an inch, and to achieve the desired buffering and volume of scent deposition under conditions as experienced in the northern United States, should be approximately 7 inches long. It can be appreciated that tube portion **73** need not travel through a full 360 degrees of arc to be effective to resist air entering into container **12**, as for example tube portion **73** could, if suitable changes were made to the length and, or interior volume thereof, be formed into a j-shape by being cut off at the level as indicated by dashed line **84**.

A further embodiment of the present invention is seen in FIG. **4**, and generally designated **90**. Embodiment **90** is designed to be suspended in a manner inverse to that of the previously described embodiments wherein the temperature buffering scent reservoir **92** is held above container **12** with respect to the ground. Reservoir **92** includes tube reservoir

portion **94** and a cap portion **96**. Cap **96** is sealably and releasably secured to container **12**. Tube portion **94** extends through cap **96** and is sealably engaged or integral therewith. Interior tube section **94a** of tube portion **94** extends into the interior volume **14** of container **12** and terminates therein with a scent intake orifice **97** closely adjacent the bottom end **98** of container **12**. Exterior tube section **94b** extends exterior of container **12** and terminates with a scent release orifice **100**, about which is secured scent wick **103** secured thereat with Velcro hooks **101**.

Embodiment **90** also includes a pair of eyelets **102** and string or wire suspension means **104**, for providing suspension thereof above the ground.

In operation, scent **16** is added into container **12**, reservoir **92** is sealably engaged with container **12**, after which dispenser **90** is suspended above the ground by suspension means **104**. As opposed to the previously described embodiments, temperature buffering reservoir **92** will, with the exception of interior tube section **94a**, be oriented above container **12** with respect to the ground. Initially scent **16** will be at the level within tube section **94a** as indicated by dashed line **106**. Dispenser **90** operates in the same manner as described herein with the previous embodiments of the present invention. Specifically, an increase in temperature will cause an expansion of the air within volume **14** resulting in scent **16** being pushed into orifice **97**, through tube portion **94** and ultimately out of orifice **100**, to drip onto the scent wick **103**. Interior tube section **94a** is needed to reach scent **16,** which due to the orientation of this embodiment, will reside at the bottom **98** of container **12**. As with the other embodiments, a decrease in temperature will contract the air in container **12** causing scent **16** to be pulled back therein, and can result in additional air being brought into container **12** to replace the volume of scent **16** dispensed. In operation scent **16** will flow out of tube **94** when it reaches the apex or high point of the arcuate exterior portion **94a**, as is indicated by the dashed line **108** tangent to that apical point. Thus, for the first cycling it can be seen that the reservoir buffering volume is represented by the volume of tube portion **94** between dashed lines **106** and **108**. However after the first deposition of scent and contraction, the exterior air drawn in will be held at the level of orifice **97**. Therefore, the effective reservoir volume for subsequent depositions will be the interior volume of tube **94** between orifice **97** and level **108**. Furthermore, tube portion **94** is j-shaped whereby orifice **100** is held somewhat away from bottle **12** so that scent **16** can be cleanly dispensed onto the wick **103** without contacting container **12**.

A further embodiment of the present invention is seen in FIG 5, and generally designated **110.** Embodiment **110** is also designed to be suspended in a manner inverse to that of the previously described embodiments wherein the temperature buffering scent reservoir **112** is held above the container **12** with respect to the ground. Reservoir **112** includes tube reservoir portion **114** and a cap portion **116.** Cap **116** is sealable and releasably secured to container **12.** Tube portion **114** extends through cap **116** and is sealably engaged or integral therewith. Interior tube section **114a** of a tube portion **114** extends into the interior volume **14** of container **12** and terminated therein with a scent intake orifice **118** closely adjacent the bottom end **98** of container **12.** Exterior tube section **114b** extends exterior of container **12** and terminates with a scent release orifice **120,** about which is secured scent wick with Velcro hooks **122.** The operation of this embodiment **110** dictates the reservoir buffering volume to be represented by the volume of the tube portion **114** between dashed lines **126** and **128.**

A further embodiment of the present invention is seen in FIG 6, wherein the modification is represented by a temperature buffering scent reservoir generally designated **142.** Reservoir **142** includes a cap end **150** for providing sealable and releasable engagement with container **12.** Reservoir **142** also includes a tube portion **144** sealably attached to or integral with cap end **150.** Portion **144** includes an intake end **146** (flush with cap **150**) extending therefrom to a release end **148.** Velcro hooks **152** hold scent wick **154** releasably in place. FIG 7 shows one possible embodiment of a scent wick.

Another further embodiment of the present invention is seen in Fig **8,** wherein the modification is represented by a temperature buffering scent reservoir or pin hole **160** through cap **162.** Cap **162** provides sealable and releasable engagement with container **12.** Scent reservoir **160** holds the scent therein by surface tension. Reservoir includes an intake end **164** and a release end **166.** Velcro hooks **168** hold scent wick **170** releasably in place. As the air inside container **12** expands, the resistive surface tension action is overcome and the scent is forced out release end **166** onto scent wick **170.** The process is reversed as the day ends.

Yet another embodiment of the present invention is seen in FIGS **9** and **10.** The temperature buffering scent reservoir is designated **174.** Reservoir **174** is similar to a cap of a plastic ketchup or honey bottle and interiorly looks like reservoir **142** of FIG 6. A closure **176** is available to seal the container **12** and reservoir **142.** Scent wick **180** is suspended

below, but not touching, external reservoir tip **178**. Otherwise, wick **180** might necessarily draw out scent from container **12**. Scent wick **180** has opposing wings **182** for support and attachment to reservoir by Velcro hooks **184**.

Another embodiment of the present invention is seen in FIGS **11** and **12**. The temperature buffering scent reservoir is designated **188**. Reservoir **188** resembles a cap to a glue bottle made of plastic. Reservoir **188** is exteriorly threaded **190** and supports a depending plug **192.** A closure **194** is interiorly threaded and secured onto reservoir **188**. Closure **194** has a small aperture **196** aligned with plug **192**. With closure **194** screwed outwardly, scent may be forced our to drip onto wick **180** with support wings **182** held in place by Velcro hooks **184**.

Reservoirs **142, 160, 174, 188** and **200** of FIG **6** and **8** through **14** hold the scent within container **12** by surface tension due to their smaller release ends **148, 160, 196** and **206** and reservoir volumes. Hence these reservoirs do not require as great as a daily temperature variation as the reservoirs **22, 50, 70, 92** and **112** of FIGS **1** through **5**.

A final embodiment is shown in FIGS **13** and **14**. The temperature buffering scent reservoir is designated **200**. Reservoir **200** resembles a cap to a squeeze bottle made of plastic. Reservoir **200** is rotatably captured in cap **202.** Reservoir **200** is in flow communication with container's **12** interior **14** when rotated outwardly from its closed and stored position from recess **204**. Scent may be forced out release end **206** to drip onto wick **180** with support wings **182** held in place by Velcro hooks **184**.

It will be appreciated by those of skill in the art that a wide variety of modifications to the present invention with respect to, for example, reservoir and container shapes and dimensions, and with respect to the orientation thereof to each other and to the ground, can be made without departing from the spirit or scope of the essential attributes thereof. Therefore, it is desired that the disclosed embodiments be considered in all respects as illustrative and not restrictive, reference being made to the appended claims rather to the foregoing description to indicate the scope of the invention.